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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,917

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Hubert Cecile Francois Martens

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EXAMINER

HEYI, HENOK G

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,917	<b>Applicant(s)</b> MARTENS ET AL.	
	<b>Examiner</b> HENOK G. HEYI	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner agrees that a recording medium comprising a dye recording layer is different from a rewritable medium comprising a phase change recording layer. However, the examiner disagrees with applicant's assertion that a dye medium groove depth of less than 100nm is not conventional. The Examiner cites another teaching of a recording layer made of dye material and having a groove depth of less than 100nm (please see below).

***Claim Rejections - 35 USC § 112 and § 101***

2. Claim 11 provides for the use of an optical data storage medium as claimed in claim 1 for multi stack recording with a reflectivity level of the first recording stack L0 as such of at least 0.5 and modulation of recorded marks in the L0 recording layer of at least 0.6 at a radiation beam wavelength of approximately 655 nm, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

3. Claim 11 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153

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USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F.

Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiuchi et al 5,764,619 (Nishiuchi hereinafter) in view of Usami (US 2002/0006105).

Regarding claim 1, Nishiuchi teaches a multi-stack optical data storage medium (recording medium according to this embodiment has two information layers, col 13 line 52) for recording and reading using a focused radiation beam entering through an entrance face of the medium during recording and reading (recording and reproducing, col 13 line 60), comprising: a first substrate having,

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on a side thereof: a first recording stack L0, comprising a recordable type L0 recording layer comprising a dye (organic coloring matter, a leuco dye, such as triphenylmethane or the like may be employed, col 14 lines 64-66), and formed in a first L0 guide groove, and a first reflective layer present between the L0 recording layer and the first substrate (guide grooves formed on a first substrate formed a first information layer formed by a thin film, col 11 line 7+), a second substrate having, on a side thereof: a second recording stack L1 comprising a recordable type L1 recording layer, said second recording stack being at a position closer to the entrance face than the L0 recording stack and formed in a second L1 guide groove (guide grooves formed on a second substrate formed a second information layer formed by a thin film, col 11 line 18+); and a transparent spacer layer sandwiched between the first and second recording stacks (there is formed a transparent separation layer between the first information layer and the second information layer, col 11 line 24+), said transparent spacer layer having a thickness substantially larger than the depth of focus of the focused radiation beam (the thickness of the separation layer be set to a value larger than twice the focal depth, col 16 line 6-12) but Nishiuchi fails to teach that the first L0 guide groove has a depth less than 100nm. However, Usami teaches the depth of the pre-groove is preferably from 30 to 90nm (the pit depth is 90nm, para [0024]). It would have been obvious to one of ordinary skill in the art to modify the recording layer of Nishiuchi to include a dye material while keeping the depth of the groove below 100nm. The modification would have been obvious because of the benefit

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of excellent recording sensitivity and recording properties, or jitter, as taught by Usami (see para [0008]).

Regarding claim 2, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein  $GL0 < 80 \text{ nm}$  (the depth of the groove is 50nm which is less than 80nm, col 47 line 45) and the first L0 guide groove has a full half maximum width  $WL0 < 350\text{nm}$  (the pit width is  $0.3\mu\text{m}$  which is equivalent to 300nm, col 20 line 60).

Regarding claim 3, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein  $25\text{nm} < GL0 < 40\text{nm}$  and the first reflective layer comprises a metal and has a thickness  $> 50 \text{ nm}$  (a metal formed into a thin reflective film having thickness of 40nm to 200nm, col 14 line 34).

Regarding claim 4, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein the recordable type L0 recording layer has a thickness between 70nm and 150nm measured on the land portion of the guide groove (Having a thickness of 90nm).

Regarding claim 5, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a dielectric layer present at a side of the L0 recording layer opposite from the side where the first reflective layer is present (the double layer structure may be a structure including a dielectric material layer/a recording layer, a structure including a recording layer/a reflecting layer or a structure including a reflecting layer/a recording layer in the forgoing sequential order, col 15 line 18-24).

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Regarding claim 6, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 5, wherein the dielectric layer has a thickness in the range of 5nm – 120nm (a dielectric layer having a thickness of 30nm, col 46 line17).

Regarding claim 7, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a second reflective layer comprising a metal is present at a side of the L0 recording layer opposite from the side where the first reflective layer present (a structure including a first reflecting layer/a dielectric material layer/a recording layer/a dielectric material layer/a reflecting layer when viewed from the substrate, col 15 line 32-35).

Regarding claim 8, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer has a thickness in the range of 5nm - 15nm (a semitransparent reflecting layer having a thickness of 14nm, col 46 line33).

Regarding claim 9, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer mainly comprises a metal selected from the group of Ag, Au, Cu, Al (the thin film reflective layer is made of a material selected from a group consisting of metal, such as Au, Al, Cu or their alloys, col 13 line 62-67).

Regarding claim 10, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein the effective reflection level of the stacks is at least 0.18 at a radiation beam wavelength of approximately 655 nm

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(reflectance of the information layer at a wavelength of 680nm is 17%, col 45 line 22 also look at col 18 line 1-8).

Regarding claim 11, Nishiuchi teaches use of an optical data storage medium as claimed in claim 1 for multi stack recording with a reflectivity level of the first recording stack L0 as such of at least 0.5 (having reflectance of 90% which is equivalent to 0.9 and definitely above 0.5) and modulation of recorded marks in the L0 recording layer of at least 0.6 at a radiation beam wavelength of approximately 655 nm (a wavelength of 680 having a numerical aperture modulated mark of 0.6, col 42 line 20-25).

### **Contact**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK G. HEYI whose telephone number is (571)270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Henok G Heyi/  
Examiner, Art Unit 2627

/William Korzuch/  
SPE, Art Unit 2627